USSR UDC: 621.396.6-181.5

BORISENKO, L. I.

"Evaluating the Effectiveness of Using Integrated Circuits"

Sb. tr. Leningr. in-t inzh. zh.-d. transp. (Collected Works of the Leningrad Institute of Railway Transportation Engineers), 1970, vyp. 312, pp 160-170 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V173)

Translation: A method is proposed for evaluating the effectiveness of using integrated microcircuits in railway automation devices. The procedure allows comparison of different electronic systems by using numerical criteria and simplifies selection of the preferred version from among approximately equivalent versions. Two illustrations, one table, bibliography of one title. Author's abstract.

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USSR UDC 621.791.753.9.053:661.97:620.163.4

BORISENKO, M. M., Engineer, and NOVOSHILOV, N. M., Doctor of Technical Sciences, Central Scientific Research Institute of Machinery-Manufacturing Technology

"Effect of Titanium on the Impact Ductility of the Metal of Joints Welded in Carbon Dioxide"

Moscow, Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 22-24

Abstract: The effect of titanium content on the impact ductility of the welded joint metal was investigated in experiments with two melts of 08GS--type wire, containing additionally 0.019-0.025%Al and 0.15%Mo, or 0.05-0.062%Al and, for comparison, 08G2S-type industrial wire. The metal of joints welded with wires containing 0.15-0.20%Ti (0.045%Ti in the metal of joint) had the highest impact ductility and lowest transition temperature into the brittle state. The welding in carbon dioxide with Ti-containing 08GS-type wires can increase the impact ductility of the welded joint metal and can decrease the brittle failure threshold only in narrow limits of Ti-content in the metal of the joint. The effect of Ti on the properties of the metal can also change, depending on how it is present in the metal. The impact ductility

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USSR

BORISENKO, M. N., and NOVOSHILOV, N. M., Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 22-24

of the metal of joints welded with 08GST-type wire, containing up to 0.55%Ti, is lower than that of joints welded with 08G2S-type wires. Four figures, three tables, six bibliographic references.

2/2

USSR

UDC 669.713.1

SAFONOV, V. N., LIMANSKIY, V. A., KLYUSHKIN, V. P., LEVKOV, YE. G., BULGAKOVA, N. G., IL'INSKAYA, G. I., BORISENKO, N. A., and LEVKOVA, A. S.

"Physical Properties and Chemical Composition of Dust Formed During the Production of Aluminum and Silumin"

Tsvetnye Metally, No 4, Apr 71, pp 43-44

Abstract: Since the physical and chemical composition of a dust dictates the basic characteristics of the dust-collecting apparatus needed, a study was made of these characteristics of dusts collected during the production of electrolytic aluminum and silumin. Two methods of determining dispersibility were studied -- using triple cyclones and using impacters. The latter were found to give the most reliable results. The specific electric resistance for the dusts was measured and found to be $4 \times 10^7 - 4 \times 10^8$ ohms. cm for electrolytic aluminum and $5 \times 10^9 - 2 \times 10^{10}$ ohms.cm for silumin dust at the dew point of the gas in the temperature range of 20 to 40°C. At 100°C both forms of dust have a specific electrical resistance of less than $10^9 - 10^{10}$ ohms.cm. Other characteristics determined were density, bulk density, angle of rest, porosity, and moisture. The electrolytic aluminum dust was analyzed for total fluorine, Al_2O_3, Na_2O, Fe_2O_3, SiO_2, CaO, MgO, resin, SO_4^{-2}, and calcination loss. 1/1

1/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--A NEW TYPE OF DISPERSION FILTERS FOR THE INFRARED SPECTRAL REGION -U-

AUTHOR-(02)-BORISEVICH, N.A., VERESCHAGIN, V.G.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12, JAN. 1970, P 168-172

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--IR FILTER, IR SPECTRUM, CRYSTAL

CONTROL MARKINGS--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1979/1611 STEP NO--UR/0368/70/012/000/0168/0172

CIRC ACCESSION NO--AP0047933

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--13SEP70
CIRC ACCESSION NO--AP0047933
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF DISPERSION FILTERS FOR IR LIGHT WHICH ARE PREPARED BY COMPRESSION OF TWO DIFFERENT POWDERED CRYSTALS INTO SINGLE COMPACTS AND ARE FOUND TO BE MORE VIBRATION STABLE THAN CRYSTAL AIR AND CRYSTAL LIQUID FILTERS USED HERETOFORE. A TOTAL OF 45 BINARY SYSTEMS OF CRYSTALLINE MATERIALS WITH PASSBANDS AT 4 TO 25 MU ARE STUDIED. OPTIMAL PREPARATION PROCEDURES FOR THESE FILTERS ARE OUTLINED AND THE TEMPERATURE DEPENDENCE OF THEIR PASSBANDS IS INVESTIGATED, SHOWING THEIR STABILITY AT TEMPERATURES FROM MINUS 50 TO PLUS 50DEGREESC. MIXED CRYSTALS OF THE ALKALI HALIDE SERIES WHOSE REFRACTIVE INDICES CAN BE SMOOTHLY VARIED WITHIN A WIDE RANGE OF VALUES ARE SUGGESTED AS PREFERRED MATERIALS FOR THESE FILTERS.

USSR

UDC 51.330.115

ANDRYUNINA, T. K., BORISENKO, N. G., ROZHKOVA, R. L.

"Algorithm for Replanning of Network Graph as to Length"

Vychisl Metody i Programir [Computer Methods and Programming -- Collection of Works], No. 3, Saratov University Press, 1970, pp 78-82 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V606 by I. Romanovskiy).

Translation: The problem of changing (proportionally decreasing) the times for performance of operations is studied, when certain of the events on a network graph occur no later than the terms fixed by the assignments.

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1/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--COAGULATION AND ANTICOAGULATION SYSTEMS OF THE BLOOD IN PATIENTS WITH UNCOMPLICATED CEREBRAL ATHEROSCLEROSIS -U-

AUTHOR-(03)-BORISENKO, R.I., OVSOV, V.V., SVIRIDOVA, L.P.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 2, PP 89-92

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD COAGULATION, ATHEROSCLEROSIS, BRAIN, PROTHROMBIN, BLOOD PLASMA, HEPARIN, CHOLESTEROL, LIPID METABOLISM, LIPOPROTEIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0800 STEP NO--UR/0475/70/000/002/0089/0092

CIRC ACCESSION NO--AP0052237

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0052237
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY OF 201 PATIENTS WITH CEREBRAL ATHEROSCLEROSIS REVEALED A MODERATE DECREASE OF THE PROTHROMBINE ACTIVITY, AN INCREASE OF BLOOD PLASMA HEPARIN TOLERANCE, INCREASE OF CHOLESTEROL AND BETHA LIPOPROTEIDS. UNDER THE EFFECT OF DRUG THERAPY NO SIGNIFICANT CHANGES OF THE COAGULATION PROPERTIES OCCURRED. FOLLOWING TREATMENT WITH HYDROSULFIDE BATHS THE PROTHROMBINE ACTIVITY DECREASED AND THE CHOLESTEROL LEVEL MODERATELY INCREASED. CONIFEROUS BATHS EXERTED NO DISTINCT EFFECT ON BLOOD COAGULATION AND LIPOID METABOLISM. IN PLANNING COMPLEX TREATMENT THE COAGULATION AND ANTICOAGULATION SYSTEMS OF THE BLOOD AND LIPOID METABOLISM SHOULD BE CONSIDERED.

UNCLASSIFIED

USSR UDC 620.178

DZHEMELINSKIY, V. V., KOVAL'CHENKO, M. S., BORISENKO, V. A., and MAKARENKO, G.N.

"Identers for Measuring the Hardness of Materials at High Temperatures"

V sb. Tugoplavk. karbidy (The Refractory Carbides -- Collection of Works), Kiev, "Nauk. Dumka," 1970, pp 233-236 (from RZh metallurgiya, No 3, Mar 71, Abstract No 3I916 by authors)

Translation: The article investigates the possibility of using hot-pressed specimens of boron carbide and titanium diboride as material for an indenter for measuring the hardness of tungsten carbide at high temperatures. It is shown that an indenter made of titanium diboride flattens at 1770° K due to the decline in TiB_2 hardness at this temperature. An indenter made of boron carbide can be used repeatedly to measure the hardness of tungsten carbide up to 2170° K without traces of chemical interaction between the material of specimen and indenter, and without failure of the latter. Three illustrations. Bibliography with eight titles.

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USSR UDC 621.385.6

BORISENKO, V. D., PETRANGOVSKIY, A. N., GLADYSHEV, G. I.

"Creation of Automatic Control System of Programmed Type [ASUTP] at Microwave Electrovacuum Device Enterprises"

Elektron. tekhnika. Nauch.-tekhn. sb. Tekhnol. i organiz. proiz-va (Electronics Technology. Scientific-Technical Collection. Technology and Organization of Production), 1971, Issue 4(44), pp 77-80 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11A171)

Translation: On the basis of the characteristics of the production of microwave electron devices and the necessity for automation of the process of manufacturing parts and control of parameters, the advisibility is confirmed of creating an automatic control system using programmed equipment. Summary.

Miscellaneous

USSR

TOMILIN, I. A., BORISENKO, V. G., PETRENKO, A. G. and SHVARTSMAN, L. A., Institute of Metallography and Physics of Metals, Institute of Precision Alloys, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Study of Decarbonization Kinetics of Transformer Steel in Moist Nitrogen-Hydrogen Media"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 34, No. 2, Feb 70, pp 329-332

Abstract: Factors determining the rate of decarbonization of transformer steel annealed in moist nitrogen-hydrogen media through the reactions

$$C + H_2O\ (gas) = CO\ (gas) + H_2\ (gas) \qquad (1)$$

$$C + 2H_2\ (gas) = CH_4\ (gas) \qquad (2)$$

were studied. Decarbonization kinetics were determined as a function of the hydrogen and water vapor content at 800°C. The decarbonization reaction took place in a mixed diffusion-kinetic mode. The reaction rate in these limits is described by a diffusion equation with third-order boundary conditions. The decarbonization rate was determined by the Biot number, which increases as the water vapor content in the gas increases, and it was found that the process goes

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USSR

TOMILIN, I. A., et al, Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, Vol. 34, No. 2, Feb 70, pp 329-332

into the diffusion region for 8-10% H_2O by volume. Since the Biot number increases with the water vapor concentration and is independent of hydrogen content, carbon oxidation through reaction (1) is irreversible and the rate of the process is not slowed by increasing the concentration of hydrogen, which is a reaction product.

Card 2/2

1/2 050 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--BEHAVIOR OF HEAT RESISTANT ELECTRIC INSULATING COATINGS DURING THE EXTENSION AND BENDING OF TRANSFORMER STEEL -U-

AUTHOR-(04)-KUDRYAVTSEV, V.V., PETRENKO, A.G., ANDREYEV, V.L., BORISENKO, V.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 310-16

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--HEAT RESISTANT MATERIAL, TRANSFORMER STEEL, PROTECTIVE COATING, ELECTRIC INSULATION, PHOSPHATE, MAGNESIUM COMPOUND, BENDING STRENGTH/(U)KARLIT PROTECTIVE COATING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0556 STEP NO--UR/0048/70/034/002/0310/0316

CIRC ACCESSION NO--AP0105541

UNCLASSIFIED

2/2 050 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105541

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT THE STRAIGHTENING ANNEALING TEMPERATURE OF COILED TRANSFORMER STEEL (700-850DEGREES), MG PHOSPHATE COATING APPLIED ON AN INTERMEDIATE MG SILICATE SUBSTRATE (2 LAYER COATING) DOES NOT UNDERGO VISIBLE FAILURES AT 2-6PERCENT EXTENSION. COATING OF THE "KARLIT" TYPE ACQUIRES SUFFICIENT ELASTICITY ONLY AT 900DEGREES AND DOES NOT FAIL AT 6PERCENT DEFORMATION. MG PHOSPHATE COATING, WITHOUT AN INTERMEDIATE COATING DOES NOT ENSURE SUFFICIENT PROTECTION OF THE STEEL AGAINST OXION. AT 700-850DEGREES WITHOUT A PROTECTIVE ATM. AND FAILS AT A RELATIVE ELONGATION OF 2-9PERCENT AND 700-800DEGREES. IN BENDING, VISIBLE DETERIORATION OF THE COATING ON THE INSIDE SURFACE OF THE BENDING SPECIMEN STARTS EARLIER IN ALL CASES, FOR GREATER RADI OF CURVATURE. THE STABILITY OF THE COATING DEPENDS, TO A GREAT DEGREE, ON THE PROPERTIES OF THE METAL, THICKNESS AND NATURE OF COATING, AND A NO. OF OTHER FACTORS. THE 2 LAYER COATING ON METAL WITH LARGE AND MEDIUM GRAIN AS WELL AS ON METAL WITH CLASS 10 CLEAN SURFACE DID NOT SEP. ON THE EXTERNAL SIDE OF THE BENDING SPECIMENS DOWN TO MIN. RADII OF BEND TESTS OF 5 AND 10 MM.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--KINETICS OF THE DECARBURIZATION OF TRANSFORMER STEEL IN MOISTENED NITROGEN HYDROGEN MIXTURES -U-

AUTHOR-(04)-TOMILIN, I.A., BORISENKO, V.G., PETRENKO, A.G., SHVARTSMAN, L.A.

COUNTRY OF INFO--USSR

SOURCE--ZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 329-32

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TRANSFORMER STEEL, NITROGEN, HYDROGEN, COLD ROLLING, SILICON STEEL, METAL DECARBURIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0178 STEP NO--UR/0048/70/034/002/0329/0332

CIRC ACCESSION NO--AP0115882

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115882

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TESTS WERE MADE ON THE CHANGE OF C CONCN. AFTER TEMPERING THE SAMPLES OF COLD ROLLED STEEL DEPENDING ON THE TIME AND CHEM. COMPN. OF THE GAS. THE INITIAL C CONTENT IN STEEL WAS 0.045PERCENT. THE GAS STREAM FLOW RATE WAS SIMILAR TO 4 M PER MIN. THE C CONCN. WAS DETD. BY CHEM. METHODS. DURING EXPTS. A CONST. CONCN. OF H SUB2 (15PERCENT) WAS MAINTAINED, CHANGING, HOWEVER, THE RATIO RHO SUBH2-RHO SUBH2O FROM 10 TO 1.5. THE RATE OF DECARBURIZATION INCREASED WITH INCREASE OF MOISTURE CONTENT IN THE MIXT. THE REACTION RATE WAS RATHER LOW COMPARED TO THE RATE OF DIFFUSION. FACILITY: INST. METALLOVED. FIZ. METAL., MOSCOW, USSR.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SOME CHARACTERISITCS OF THE TECHNOLOGY OF ANNEALING COLD ROLLED TRANSFORMER STEEL STRIP FOR STRAIGHTENING PURPOSES -U-

AUTHOR--BORISENKO, V.G.

B

COUNTRY OF INFO--USSR

SOURCE--IZVEST. AKAD. NAUK SSSR, FIZ., FEB. 1970, 34, (2), 339-343

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL ROLLING, COLD WORKING, TRANSFORMER STEEL, PLASTIC DEFORMATION, TENSILE STRENGTH, MAGNETIC PRO ERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1456 STEP NO--UR/0048/70/034/002/0339/0343

CIRC ACCESSION NO--AP0130389

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130389

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDITIONS BEST SUITED TO THE ANNEALING OF COLD ROLLED TRANSFORMER STEEL STRIP IN ORDER TO STRAIGHTEN THE MATERIAL AND IN EASE THE PROPORTION AVAILALBE FOR USE IN HIGH QUALITY ELECTRICAL MACHINERY WERE STUDIED UNDER LABORATORY AND INDUSTRIAL CONDITIONS. SPECIAL ATTENTION WAS PAID TO THE EFFECT OF AN NE ING CONDITIONS ON THE MAGNETIC PROPERTIES OF THE STEEL AS WELL AS ITS EXTERNAL STRUCTURE. ALIGHT PLASTIC DEFORMATIONS IN THE COURSE OF ANNEALING HAD ONLY A NEGLIGIBLE EFFECT ON THE MAGNETIC PROPERTIES, BUT SEVERE DISTORTION HARMED THESE APPRECIABLY. IN NO CASE SHOULD SUCH STRIP BE SUBJECTED TO GREATER LINEAR TENSILE STRAIN THAN 0.3PERCENT.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002200420017-3"

USSR

UDC 533.69.01

BORISENKO, V. I., SHPAKOVA, S. G., Institute of Mechanics, Academy of Sciences UkrSSR, Kiev

"Investigation of the Interaction Between a Fluttering Circular Wing and the Flow of an Ideal Fluid"

Kiev, Prikladnaya mekhanika, Vol. VIII, No. 7, Jul 72, pp 86-91

Abstract: A method proposed earlier by one of the authors for solving the three-dimensional problem with the vibrations of a circular wing in the flow of an ideal liquid and based on the extension of the theory of a circular wing developed by Kochin to the problem of steady-state vibrations of such a wing is used to study the interaction between a wing and a fluid at low-frequency oscillations. A method was developed for solving the three-dimensional problem of oscillations of a circular wing in the flow of an ideal liquid and the hydrodynamic forces acting on the oscillating membrane were determined. Expressions are obtained for the lift and the longitudinal moment in the case when the frequency of the oscillations is small and the shape of oscillations of the membrane coincides with the first or second form of oscillations in a vacuum. It is noted that this problem was solved by E. Van Spigel using the acceleration potential method and that

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USSR

BORISENKO, V. I., SHPAKOVA, S. G., Prikladnaya mekhanika, Vol. VIII, No. 7, Jul 72, pp 86-91

in final analysis the solution of the problem reduced to an infinite system of algebraic equations. The advantage of the method presented in this paper is that the expression obtained makes it possible to express hydrodynamic forces in explicit form in terms of the coefficients determining the wing shape. This facilitates the study of complex modes of motion when the shapes of the oscillations are unknown beforehand, as, for example, in solving problems in hydroaeroelasticity.

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USSR

UDC: 533.6.013.42

BORISENKO, V. I., MARTYNENKO, V. S., Kiev

"Experimental Study of Oscillations of an Ellipsoidal Shell Containing a Fluid"

Kiev, Prikladnaya Mekhanika, Vol 6, No 11, 1970, pp 118-121

Abstract: The purpose of this article is the determination of the degree of influence of a fluid on the oscillating frequency of an ellipsoidal shell with a free edge and attached pole. Oscillations with no nodal parallels were studied. It is demonstrated that the fluid contained in such shells can decrease their natural oscillating frequencies by 2-2.5 times. The degree of influence of the fluid increases with increasing filling and decreases with increasing numbers of nodal lines. The influence of the fluid decreases with increasing shell thickness.

USSR

UDC:532.501.312

BORISENKOV, A. I., KOSTIKOV, O. N., CHUMACHENKO, V. I.

"Hydraulic Drag with Laminar Flow of a Liquid in a Channel Rotating About Its Axis"

Samoletostr. i Tekhn. Vozd. Flota. Resp. Mezhved. Temat. Nauch.-Tekhn. Sb: [Aircraft Construction and Airfleet Technology. Republic Interdepartmental Thematic Scientific and Technical Collection], 1973, No 32, pp 42-46 (Translated from Referativnyy Zhurnal Aviatsionnyye i Raketnyye Dvigateli, No 11, 1973, Abstract No 11.34.27, from the resume)

Translation: Problems of the influence of rotation of a channel about its axis with laminar and laminarized flow of a fluid are discussed. Data are presented from experimental determination of pressure loss with laminar flow of a fluid in a channel rotating about its axis. 2 Figures; 11 Biblio. Refs.

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USSR

UDC 535.373.2

BORISEVICH, N. A., KOTOV, A. A., PAVLOVA, V. T., and TOLSTOROZHEV, G. B., Institute of Physics, Academy of Sciences Belorussian SSR

"Triplet-Triplet Electron Energy Transfer in Gas Phase"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 37, No 3, 1973, pp 508-512

Abstract: The authors made a kinetic study of triplet-triplet electron energy transfer for donor-acceptor pairs of aromatic hydrocarbons and ketones, the lower triplet levels of which have various electron configurations. This phenomenon of T-T energy transfer was used to study the paths of excitation energy degradation in anthraquinone and benzophenone molecules in the gas phase, as well as to obtain sensitized anti-Stokes annihilation retarded fluorescence.

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USSR

UDC: 535.373.2

BORISEVICH, N. A., KOTOV, A. A., and TOLSTOROZHEV, G. B.

"Radiationless Transition of Electronic Energy in Monatomic Molecules"

Moscow, Izvestiya AN SSSR -- Seriya Fizicheskaya, vol 36, No 5, 1972, pp 935-940

Abstract: Special attention is given in this paper to the triplet-triplet transfer of energy of excitation in organic compound vapors, a subject that has been relatively neglected in the literature although it has been studied in detail in relation to condensed media. Because few materials phosphoresce with much intensity in the gaseous phase, the choice of energy donors that can be conveniently studied is difficult. In their experiments, however, the authors used diacetyl donors; the quantum interconversion output for this material in long-wave absorption excitation is close to unity. Anthracene, 9.10 dimethylanthracene, 9.10 diphenylanthracene, and pyrene were used to supply acceptor energy. Tables of the characteristics of these materials are given. In shortwave excitation, the quantum output of the intercombination conversion is found to drop. This indicates that an additional process of highly effective radiationless degradation of the electronic energy is at work without the participation of the lower

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UDC: 535.373.2

BORISEVICH, N. A., et al, Izvestiya AN SSSR -- Seriya Fizicheskaya, vol 36, No 5, 1972, pp 935-940

triplet state. The authors are associated with the Physics Institute of the Belorussian Academy of Sciences.

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BORISEVICH, N.A.

Infrared Radiation

JPRS 56916

30 August 1972

TABLE OF CONTENTS AND FOREWORD OF A BOOK ON INFRARED FILTERS

[Excerpts from a Russian-language book by [illegible] Borisevich, V. G. Vereshchagin and M. A. Validov; Minsk, Infrakrasnyye Fil'try, Russian, 1971, pp 3-4, [illegible]-231]

Forword

Infrared radiation is being used on a growing scale in scientific research and in practical applications. A number of monographs are devoted to this field of science and technology and its individual sections. There has been a particular increase in their number over the past two decades. Simplified methods of monochromatization of infrared radiation with the use of filters, however, has still not been systematically examined. At the same time significant success was attained in the last 10-15 years in the development and application of infrared filters. Infrared filters are used in quantum electronics, in astrophysical research, in pyrometry, in military science, as well as in chemistry, biology, and medicine. Without filters it is impossible to create a single infrared monochromator or spectrometer. High-speed methods of spectral molecular analysis are being developed on the basis of filters.

This monograph makes the first attempt to examine principles involved in the operation of various types of infrared filters, along with their spectral characteristics, and certain structural peculiarities.

The first chapter in the monograph is an introduction. It contains a brief description of the spectral characteristics of sources and receivers of infrared radiation without a consideration of which it is impossible to make a correct determination of the demands made on filters utilized in various areas of the infrared spectrum. The second paragraph of the chapter contains general information about constant optical materials which are needed for an understanding of the interaction of infrared

[I - USSR - L]

USSR

UDC 621.378

BORISEVICH, N. A., KALOSHA, I. I., LAVRUSHIN, V. F., MASLENNIKOVA, V. P., TOLKACHEV, V. A.

"Generation Capacity of Isomer 1,4-Dipyrazolenylbenzenes"

Minsk, Zhurnal Prikladnoy Spektroskopii, No. 1, Jan 72, pp 45-48

Abstract: A large group of the 1,4-dipyrazolenylbenzenes of the structure 1,4-di(n'-$R_{n'}$-m'-m'-$R_{m'}$-$\Delta^{2'}$-pyrazolenyl-k') benzene was investigated; where n denotes 1 or 3 positions; m is 3, 5; k is 1, 3, or 5; and $R_{n'}$ and $R_{m'}$ are aryl or methyl substitutes in the position n' and m'. The fluorescence and desorption spectra and the relative quantum yield of this class have been thoroughly investigated. Three groups of compounds were studied under excitation of the second harmonic of a ruby laser: 1,4-di(1'-aryl-3'-aryl-$\Delta^{2'}$-pyrazolenyl-5') benzenes (16 substances) and 1,4-di(1'-methyl-3'-phenylpyrazolenyl-5') benzenes (A); 1,4-di(1'-aryl-5'-aryl-$\Delta^{2'}$-pyrazolenyl-3') benzenes (12 substances) and 1,4-di(1'-methyl-5'-phenylpyrazolenyl-3')-benzene (B); and 1,4-di(5'-aryl-3'-aryl-$\Delta^{2'}$-pyrazolenyl-1') benzenes (8 substances) (C). Only compounds of group (B) are generated. Generation on two wavelengths corresponding to the

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BORISEVICH, N. A., et al, Zhurnal Prikladnoy Spektroskopii, No. 1, Jan 72, pp 45-48

oscillatory maxima of the fluorescence spectra was observed in the majority of (B) compounds. The generation wavelength is in the range 425-500 nm. The relationship between the generation capacity and the structural chain of the compound is analyzed.

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USSR

UDC 535.89

BORISEVICH, N. A., GRUZINSKIY, V. V., PALTARAK, N. M., SNAGOSHCHENKO, L. P., SUCHKOV, V. A.

"Generation and Tuning of the Radiation Bands of a Laser Based on Solutions of Certain Organic Compounds"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 41-44

Abstract: The generation of solutions of oxazole and oxadiazole solutions that differ in the type and position of substitutes and have one or two oxazole rings was studied. Generation of tetraphenylbutadiene and a solution of a coumarin mixture was also obtained. Compounds of these classes are activators of organic scintillators. They were effective active media for liquid lasers in the ultraviolet and blue regions of the spectrum. A table is given showing the name of the substances, the position and width of the strongest part of the generation bands, and the concentration of the solutions for which generation was obtained. Duration of fluorescence is given for the smallest concentrations (10^{-3} g/l) for which the monomer molecules fluoresce. The generation bands were tuned with a diffraction grating (1200 lines/mm) which concentrated 70% of the reflected light. The second mirror

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BORISEVICH, N. A., et al., Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 41-44

of the resonator was a wide-band mirror. The use of a grid made it possible to narrow considerably and frequency tune the generation bands. For tetraphenylbutadiene with a generation band width of 16 nm, the range of smooth tuning of the generation frequency was 70 nm (480-550 nm). Of greatest interest was the tuning of generation bands of solutions of oxazole and oxadiazole derivatives, since their position was little dependent on experimental conditions in operating with a nonselective resonator.

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USSR

UDC 535.89

BORISEVICH, N. A., BOLOT'KO, L. M., GRUZINSKIY, V. V., TOLKACHEV, V. A.

"Generation of Coumarin Solutions Under the Excitation of a Flash Bulb"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 148-150

Abstract: Nine coumarin derivatives were used to obtain generation and tuning of the generation frequency. The concentration of solutions was 0.1 g/l. A specially designed quartz flash bulb with an evacuated air space ($\sim$ 60 mm) was used. A capacitor bank provided a rise time of the light pulse of the lamp of $\sim$ 0.4 μsec. The position of the maximum and the width of the generation bands are compared for pumping by the flash bulb and pumping by the second harmonic of a ruby laser. The generation bands under both forms of pumping are wide when a nonselective resonator is used. Due to the slight overlapping of the fluorescence and absorption spectra, the generation bands correspond to the maxima of the fluorescence bands and they are not shifted or only slightly shifted with a change in the concentration of solution. Generation of coumarin derivatives was possible in several solutions. With flash bulb pumping the energy of the radiation generated for 7-sulfomethylamino-4-methylcoumarin decreases in the solvents water, ethyl alcohol, and

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BORISEVICH, N. A., et al., Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 148-150

dimethylformamide. Generation frequency tuning was carried out for a solution of 7-amino-4-methylcoumarin in ethanol, which had a generation band of the shortest wavelength of those known in coumarins. The most intensive part of the generation band was located in the range 438-446 nm. Smooth frequency tuning with simultaneous narrowing of the generation band was accomplished in a wider region, 427-453 nm. Solutions of mixtures of coumarins are suggested to obtain laser radiation in the widest possible spectral region.

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USSR UDC: 535.373.2

BORISEVICH, N. A., Academician Belorussian Academy of Sciences, and KOTOV, A. A..

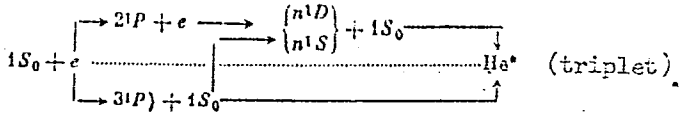
"Quenching of Anthraquinone and Benzophenone Vapor Luminescence in Large-Quanta Excitation"

Minsk, Doklady Akademii Nauk BSSR, Vol. 14, No. 9, 1970, pp 798-801

Abstract: The quantum output and the luminescence duration of anthraquinone and benzophenone vapors as functions of the frequency of the exciting radiation are considered. A plot of the results of this experimental work with two ordinates, one for the relative quantum output and the other for the absorption spectra of the vapors, and a single abscissa, for the frequency, is given. The output quanta were measured by a method described in an earlier paper (Borisevich, N. A., Abstracts of Candidates' Theses, Leningrad, 1954). The excitation radiation was supplied by mercury lamp SVD-120 in the 248-405 nm range for the anthraquinone and 248-365 nm for the benzophenone. A diffraction monochromator was used to detect the mercury lines. The xenon lamp IFP-800, fed

USSR

VASILENKO, L. S., et al., Optika i Spektroskopiya, Vol 28, No 6, Jun 70, pp 1085-1093



The authors thank G. A. MIIUSHKIN And YU. A. RAKOV for their assistance in the experiments.

USSR

UDC 535.373.2

BORISEVICH, N. A., Academician of the Belorussian SSR Academy of Sciences, and TOLSTOROZHEV, G. B., Institute of Physics of the Belo-Russian SSR Academy of Sciences

"Effect of Foreign Gases on the Fluorescence of Anthracene Derivatives"

Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 10, 1970, pp 885-888

Abstract: The effect of pentane on the fluorescence spectra and quantum yield of vapors of anthracene (A), 9,10-dimethylanthracene (9, 10-DMA); and 9,10-diphenylanthracene (9,10-DPA) was investigated. Fluorescence spectra of dilute vapors of A, 9,10-DMA; and 9,10-DPA excited by radiation of different wavelengths λ_{ex} both in the presence and in the absence of pentane were recorded. With a decrease in the wavelength of the exciting radiation the fluorescence spectra of A vapor shifts toward the long-wave side and its structure becomes blurred. On the addition of pentane, the fluorescence spectra of A excited by radiation

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BORISEVICH, N. A., et al., Doklady Akademii Nauk BSSR, Vol 14, No 10, 1970, pp 885-888

with wavelength λ_{exc} = 313 microns shifts toward the short-wave region and their structure becomes more angular: i.e., the spectrum changes just as for an increase in the wavelength of the exciting radiation. In the presence of pentane, the fluorescence spectra of 9,10-DMA for λ_{exc} = 313 microns and λ_{exc} = 365 microns shifts toward the short-wave region. The fluorescence spectrum excited by radiation with wavelength λ_{exc} = 248 microns (second absorption band) is continuous and strongly shifted toward the long-wave region. It is concluded that there is a qualitative correspondence between change in the fluorescence yield of 9,10-DMA and 9,10-DPA vapor when pentane is added and that this depends on the vibrational energy reserve.

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USSR

BORISEVICH, N. A.; TOLSTOROZHEV, G. B.

"Effectiveness of Quenching the Fluorescence of Vapors of Complex Molecules with Oxygen"

Leningrad, Optika i Spektroskopiya; October 1970, pp 701-5.

ABSTRACT: The authors studied the quenching with oxygen of the fluorescence of rarified vapors of anthracene; 9, 10-dimethylanthracene; and 9, 10-diphenylanthracene. An evaluation of the effectiveness of quenching was made on the basis of direct measurements of the duration of the fluorescence . For the compounds studied the effectiveness of quenching is less than unity and depends on the supply of oscillatory energy of the excited molecules. It was assumed that in complex molecules the degree of singlet-triplet association increases with an addition of oxygen. As a result, the forbidden singlet-triplet transitions decrease: i.e., additional radiationless transitions occur. The dependence on the supply of oscillatory energy of the effectiveness of the quenching of the fluorescence of vapors of complex molecules by oxygen as well as the dependence of the probability of radiationless transitions in isolated molecules (impossible with oxygen) are related to the structure of the electron levels of the molecules studied.

USSR

UDC 535.34

BORISEVICH, N. A., and VERESHCHAGIN, V. G.

"New Dispersion Filter for the Infrared Region of the Spectrum"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol. 12, No. 1, Jan 1970, pp 168-172

Abstract: This paper describes a new crystal-crystal type of filter which is superior to the crystal-air and crystal-fluid dispersion filters described in earlier literature. The defects of these two latter types, which the new type avoids, is that they change their characteristics under vibration. In the crystal-fluid filter, furthermore, the container may lose its hermetic sealing. In the manufacture of crystal-air or crystal-fluid filters, two highly polished crystal plates, transparent for the infrared region of the spectrum, must be used; for the new type of crystal-crystal filter, there is no need for polished plates. Hence, losses in infrared radiation are reduced and so is the cost. A table of various types of crystal-crystal filters and their basic characteristics is given. Curves are also given showing the bandwidths of the different crystal types listed in

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BORISEVICH, N. A., et al, Zhurnal Prikladnoy Spektroskopii, Vol. 12, No. 1, Jan 1970, pp 168-172

the table. The authors have also developed a new method for the preparation of these filters and describe their method of growing the crystals used. Another claim made for the new crystal-crystal filter is that its transmissibility is practically independent of the temperature. Moreover, it is stable and mechanically sturdy.

USSR

UDC 535.89

BORISEVICH, N. A., GRUZINSKIY, V. V., KUTSINA, L. M, PALTARAK, N. M.

"Generation in Solutions of Organic Scintillators"

Minsk, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 12, No 2, Feb 1970, pp 328-330

Abstract: Derivatives of oxazole and oxadiazole are effective organic scintillators and have high fluorescence yields, little sensitivity to oxygen extinction, and other favorable properties for stimulated emission. Various substances with phenyl, diphenyl, and naphthyl radicals and oxazole and oxadiazole rings were tested in solution with toluol, n-xylol, and ditolylmethane. Excitation was provided by doubling the frequency of a ruby laser.

Contrary to other reports, a correlation is found between solution concentration and the position of the generation line. Line shifts were observed for 2(1'-naphthyl)5-phenyloxazole and 1,4-di-[2-(5-phenyloxazolyl)] benzene when their concentrations were increased; line narrowing was observed no n-dimethylamino-2,5-diphenylozadiazole with increase in concentration.
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BORISEVICH, N. A., et al., Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 12, No 2, Feb 1970, pp 328-330

In some substances generation occurred at room temperature at several wavelengths, corresponding to vibration maxima of their fluorescence bands. The solutions tested can be operated as pulsed light-pumped lasers having low thresholds and high amplification factors. Such organic lasers can be used to generate emission in the ultraviolet region.

Orig. art. has 1 fig., 1 table, and 5 refs.

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USSR B UDC 535.8

BORISEVICH, N. A., GRUZINSKIY, V. V., KUTSYNA, L. M.

"Lasers of Organic Molecular Solutions in the Near-Ultraviolet Spectral Region"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 12, No 6, 1970, pp 1111-1115

Abstract: Experiments are described in the generation of laser radiation using the aryl products of oxazole and oxadiazole. A table is given of the compounds, their structural formulas, their concentrations, and the bandwidth of their radiation as found in the experiments. The conditions were the same as those for earlier experiments conducted along the same lines by the first two authors named above together with various other collaborators, and reported in the same journal (11, 173, 1969; 12, 490, 1970; 12, 490, 1970; 12, 926, 1970). The materials studied in the present paper permitted full coverage by the laser radiations of the 360-400 nanometer range of the spectrum. The authors promise a detailed analysis of the generation characteristics of materials of this type as well as their choice of the most effective media for this work in a future paper.

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1/3 020 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--LONG TERM LUMINESCENCE OF VAPORS OF COMPLEX MOLECULES -U-

AUTHOR-(03)-BORISEVICH, N.A., GRUZINSKIY, V.V., KOTOV, A.A.

COUNTRY OF INFO--USSR

B

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 490-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--LUMINESCENCE SPECTRUM, ANTHRAQUINONE, BENZENE DERIVATIVE, AROMATIC KETONE, PHOSPHORESCENCE, EXCITED STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0939 STEP NO--UR/0048/70/034/003/0490/0498

CIRC ACCESSION NO--AP0134664

UNCLASSIFIED

2/3 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134664

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TIME DEPENDENCE OF THE LUMINESCENCE OF ANTHRAQUINONE I, PH SUB2 CO II, 4,PHENYLBENZOPHENONE III, AND BENZANTHRONE IV WAS STUDIED. THE LUMINESCENCE AND ABSORPTION SPECTRA OF THE COMPDS. UNDER STUDY ARE SHOWN, AND AN APPROX. ENERGY LEVEL DIAGRAM BASED ON LITERATURE DATA AND EXPTL. RESULTS IS GIVEN. THE VAPOR LUMINESCENCE OF I AND II AT HIGH CONCNS. CONTAINED 2 COMPONENTS WITH COINCIDING SPECTRA. THE LONG LIVED COMPONENT, REPRESENTED BY ALPHA PHOSPHORESCENCE, WAS PREDOMINANTLY RESPONSIBLE FOR THE OVERALL LUMINESCENCE. THE LUMINESCENCE SPECTRUM WAS INDEPENDENT OF THE FREQUENCY OF EXCITATION. THE CONTRIBUTION OF THE SHORT LIVED COMPONENT TO EMISSION WAS LESS THAN OR EQUAL TO 5PERCENT. THE ABSORPTION AND LUMINESCENCE SPECTRA OF VAPORS OF III WERE CLOSELY RELATED TO THOSE OF II. THE PH RADICAL CAUSED THE PI PI SEXTILE ABSORPTION BAND TO SHIFT TOWARDS LONGER WAVELENGTHS. SIMILARLY TO I AND II, THE LUMINESCENCE SPECTRUM OF III WAS INDEPENDENT OF THE FREQUENCY OF EXCITATION; IT SHOWED, HOWEVER, THE TEMP. DEPENDENCE COMMON IN THE LUMINESCENCE OF VAPORS. THE LUMINESCENCE INTENSITY CHANGED PROPORTIONALLY TO THE INTENSITY OF EXCITATION. A STUDY OF THE DEPENDENCE OF THE QUANTUM YIELD AND DURATION OF THE VAPOR LUMINESCENCE OF I, II, AND III ON TEMP. AND THE FREQUENCY OF EXCITATION ALLOWED ONE TO VERIFY THE THEORETICAL CONCEPTS OF THE LONG TERM VAPOR FLUORESCENCE OF THE COMPDS. UNDER STUDY. THE LUMINESCENCE SPECTRUM OF THE VAPORS OF IV SHOWED 2 BANDS WHEREAS A SINGLE BAND WAS OBSD. IN SOLN.

UNCLASSIFIED

3/3 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134664

ABSTRACT/EXTRACT--THE LONG WAVE BAND IN THE VAPOR LUMINESCENCE REPRESENTED BETA PHOSPHORESCENCE WITH A DURATION OF 7 TIMES 10 PRIME NEGATIVE4 SEC, AND THE LOWEST EXCITED SINGLET AND TRIPLET STATES OF IV WERE THE PI PI SEXTILE STATES. CONTRARY TO I, II, AND III, AN INTENSE LUMINESCENCE OF SOLNS. OF IV AND SEVERAL OF ITS DERIVS. WAS OBSD. AT AMBIENT TEMP.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT7C

TITLE--CONVERSION OF ELECTRONIC EXCITATION ENERGY IN VAPORS OF ANTHRACENE DERIVATIVES -U-

AUTHOR-(02)-BORISEVICH, N.A., TOLSTOROZHEV, G.B.

B

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 654-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--EXCITATION ENERGY, ANTHRACENE, FLUORESCENCE, COMPLEX MOLECULE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0667 STEP NO--UR/0048/70/034/003/0654/0657

CIRC ACCESSION NO--AP0124339

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--30OCT7(

CIRC ACCESSION NO--AP0124339

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. QUANTUM YIELD, GAMMA, AND FLUORESCENCE LIFETIME, GAMMA, IN VAPORS OF COMPLEX MOLS. PROVIDE IMPORTANT INFORMATION ON THE INTERNAL CONVERSION OF THE EXCITATION ENERGY IN A MOL. THESE PROPERTIES WERE EXAMD. OVER A WIDE RANGE OF TEMPS., 420-670DEGREESK, AND WAVELENGTHS OF THE EXCITING RADIATION, 248-365 NM, IN ANTHRACENE AND ITS 9,10 DIMETHYL AND DIPHENYL DERIVS. FOR ANTHRACENE PI EQUALS 5.9 TIMES 10 PRIME9 NEGATIVE SEC IS INDEPENDEN OF BOTH NU SUBEX (LAMBDA EQUALS 365, 348, 334, 313) AND T (420-520DEGREESK). FOR THE DI ME DERIV. TAU AND GAMMA INCREASE FOR HIGHER NU SUBEX (LAMBDA EQUALS 365 NM) BUT DECREASE FOR LAMBDA EQUALS 254, 248 NM; THESE QUANTITIES INCREASE AND DECREASE WITH TEMP. FOR EXCITATION WITH LIGHT OF LONGER OR SHORTER WAVELENGTH, RESP. FOR THE DI PH DERIV. THE QUANTITIES ARE INDEPENDENT OF NU SUBEX FOR LAMBDA EQUALS 365 NM BUT DECREASE SLIGHTLY FOR HIGHER NU SUBEX VALUES. FOR LAMBDA EQUALS 365 NM NO TEMP. EFFECT, AND FOR LAMBDA EQUALS 334 AND 313 TEMP. QUENCHING IS OBSD. FACILITY: INST. FIZ., MINSK, USSR.

UNCLASSIFIED

1/2 042 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--LASING IN SOLUTIONS OF ORGANIC SCINTILLATORS -U-

AUTHOR-(04)-BORISEVICH, N.A., GRUZINSKIY, V.V., KUTSINA, L.M., PALTARAK, N.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 328-30

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--STIMULATED EMISSION, LASER EXCITATION, SCINTILLATOR, SOLUTION CONCENTRATION, LUMINESCENCE SPECTRUM, QUANTUM YIELD, CHEMICAL STABILITY, BENZENE COMPOUND, AZOLE, ORGANIC OXYGEN COMPOUND, DIPHENYLAMINE, PHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1458 STEP NO--UR/0368/70/012/002/0328/0330

CIRC ACCESSION NO--AP0118447

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002200420017-3"

2/2 042 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118447

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STIMULATED EMISSION OF 1,4,BIS(5,TOLYL,2,OXAZOLYL)BENZENE (I), 1,4,BIS(5,PHENYL,2,OXAZOLYL)BENZENE (II), 2,BIPHENYLYL,5,(1,NAPHTHYL)OXAZOLE (III), 2,(1,NAPHTHYL),5,PHENYLOXAZOLE (IV), AND P,DIMETHYLAMINO,2,5,DIPHENYLOXADIAZOLE (V) IN PHME, P,XYLENE, OR DITOLYLMETHANE WAS OBSD. IN TWO PHOTON EXCITATION BY A RUBY LASER. FLUORESCENCE SPECTRA, EMISSION HALF LIVES, QUANTUM YIELDS, AND PHOTOCHEM. STABILITY OF I-V ARE DISCUSSED. SHIFTS OF 0.5 AND 1.3 NM OF THE STIMULATED EMISSION MAX. OF II AND IV, RESP. DUE TO CONCN. CHANGE (2-3 FOLD) WERE OBSD.

UNCLASSIFIED

USSR

UDC: 536.24:536.42

DANILOVA, G. N., BEL'SKIY, V. K., KUPRIYANOVA, A. V., BORISHANSKAYA, A. V.

"Motion-Picture Study of the Process of Boiling of Ammonia and Freon"

V sb. Teplo- i massoperenos. T. 2. Ch. 1 (Heat Transfer and Mass Transfer, Vol 2, Part 1--collection of works), Minsk, 1972, pp 132-140 (from RZh--Mekhanika, No 9, Sep 72, Abstract No 9B993)

Translation: Experiments were done with large-volume boiling on a horizontal stainless steel plate measuring 60 × 1.9 mm (in experiments with freon-12, -142, -113) and 62.5 × 2.6 mm (in experiments with ammonia). Heat fluxes were varied in the experiments from 2 580 to 46 300 $W \cdot m^{-2}$, pressure from 0.59 to 12.2 abs. at. Motion pictures were taken at a rate of 3 600-4 700 frames per second. The quantitative effect of pressure on the detachment diameter D_{0p}, the rate of detachment U, the product $D_{0p}U$ and the rate of growth of the bubbles at the instant of detachment $W_0'' = (dD/d\tau)_{\tau=\tau_{max}}$ was determined. At atmospheric pressure, in view of the closeness of the characteristics of vaporization of freons, it is proposed that the values $D_{01} = 0.65$ mm and $U = 62$ Hz, $D_{01}U = 40$ mm/s should be assumed; for ammonia -- $D_{01} = 1.45$ mm. Computational expressions are proposed for

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DANILOVA, G. N., et al., Teplo- i massoperenos. T. 2. Ch. 1, Minsk, 1972, pp 132-140

these characteristics, which decrease in magnitude as pressure is increased. On the basis of the law of corresponding states, a generalization is also proposed for calculating the detachment diameter of vapor bubbles of water, freon-12 and ammonia. The rate of growth of vapor bubbles (W_0'') is satisfactorily described by the Labuntsov formula when $\beta = 6.75$ for ammonia and $\beta = 4.5 \pm 5$ for freon-12. Bibliography of 13 titles. Yu. Ye. Pokhvalov.

2/2

USSR

UDC:621.165-226.2-752

BORISHANSKIY, K. N., SHEMTOV, A. Z., Leningrad

"Peculiarities of Oscillations of Turbine Power Blades Related to the Use of Variable-Step Diaphragms.

Kiev, Problemy Prochnosti, No 10, Oct 73, pp 43-50

Abstract: The peculiarities of resonant oscillations of turbine blades arising when so-called variable-step diaphragms are used, are studied. A method is suggested and an example presented of the calculation of such diaphragms. It is shown that the dynamic stresses in the blades can be decreased by 1.5-2 times with a deviation in the step of the guide blades by but a few percent. The influence of oscillation decrement on the effectiveness of utilization of variable-stepped diaphragms is studied.

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USSR

UDC 621.165-226.2-752

SHEMTOV, A. Z., BORISHANSKIY, K. N., (Leningrad)

"Some Peculiarities of the Oscillations of Turbine Blade Wheels with Couplings Closed into a Circle"

Kiev, Problemy Prochnosti, No 8, 1972, pp 74-78.

Abstract: The peculiarities of oscillations of blades in the final stages of powerful stationary steam turbines resulting from the use of couplings forming a complete circle around the outer portions of the blades are studied. The boundary conditions are presented for determination of the natural oscillating frequencies of the blades when connected by so-called damper wires. Using blades of constant cross section as an example, phenomena arising in case of variations in the partial frequencies of blades in a set are studied.

Turbine and Engine Design

USSR

UDC 621.165-226.2-752

BORISHANSKIY, K. N., (Leningrad)

"Comparison of Results of Theoretical and Experimental Study of Blade Wheel Oscillations with Couplings Forming a Closed Circle"

Kiev, Problemy Prochnosti, No 8, 1972, pp 79-82.

Abstract: Results are presented which are produced on the oscillations of blades in the last stage of a powerful steam turbine are studied. Experimental data are presented concerning the nature of connections of blades with damper wires. Considering the boundary conditions used, a rather good coincidence is achieved between experimental and calculated values of natural oscillating frequencies and shapes. Certain peculiarities related to unavoidable variations in blade frequencies are studied.

USSR

UDC 536.423.4:546.36

BORISHANSKIY, V. M., TALEYEV, I. I., ET. AL.

"Condensation of Cesium Vapors from a Stream of Argon"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol. 20, No. 4, Apr. 71, p. 600-605.

Abstract: The results are presented from an experimental study of the condensation of small admixtures of cesium vapor from a stream of argon. Condensation was studied with laminar flow inside a tube and for a tube bundle with turbulent flow. The experimental data obtained on precipitation of cesium are compared with calculated data, based on similarity of heat and mass transfer. This comparison, combined with wall temperature and inlet cesium concentration effects, showed that cesium concentration is influenced by the formation of mist with decreasing gas temperature. Mist formation decreases condensation.

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1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--PATHOLOGICAL ANATOMY OF TOXOPLASMA INDUCED ENDOPHTHALMITIS -U-

AUTHOR-(03)-KOGUY, T.F., BORISHPOLETS, V.I., KHORASANYANTADE, A.A.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OFTAL'MOLOGII, 1970, NR 3, PP 59-62

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INFANT DISEASE, TOXOPLASMOSIS, EYE DISEASE, RETINA, CORNEA, NECROSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1908 STEP NO--UR/0357/70/000/003/0059/0062

CIRC ACCESSION NO--AP0129257

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0129257

ABSTRACT/EXTRACT--(U) G9-0- ABSTRACT. HISTOLOGICAL INVESTIGATIONS MADE IN AN INFANT OF 1 MONTH AND 10 DAYS WITH GENERALIZED FORM OF CONGENITAL TOXOPLASMOSIS DISCLOSED SUBACUTE PRODUCTIVE NECROTIC ENDOPHTHALMITIS, PRODUCTIVE CHORIORETINITIS, NECROTIC HEMORRHAGIC RETINITIS WITH DETACHMENT AND NECROSIS OF THE RETINA, PRODUCTIVE UVEITIS, DYSTROPHIC ALTERATIONS OF THE CRYSTALLINE LENS AND CORNEA. MORPHOLOGICAL CHANGES WERE NONSPECIFIC, BEING TRANSLATED BY DIFFUSE PROLIFERATION OF ELEMENTS IN THE RETICULO HISTOCYTE SERIES, CHIEFLY OF PLASMA CELLS, AND ALSO BY MASSIVE NECROSIS AND INCREASED PERMEABILITY OF VASCULAR MEMBRANES WITH HEMORRHAGES. THE TOXOPLASMA NATURE OF ENDOPHTHALMITIS WAS CONFIRMED BY DETECTION OF THE CAUSATIVE AGENT IN THE EYE AND OPTIC NERVE TISSUES. GROSS DEFORMATIONS OF THE EYEGLOBE, SUCH AS CONGENITAL PSEUDOMICROPHTHALMOS, CONGENITAL CATARACT, ETC. CAN DEVELOP AS A CONSEQUENCE OF INTRAUTERINE TOXOPLASMA INDUCED ENDOPHTHALMITIS DUE TO NECROSIS AND CICATRIZATION. FACILITY: KAFEDRA PATOLOGICHESKOY ANATOMII III MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM N. I. PIROGOVA, KAFEDRA GLAZNYKH BOLEZNEY TSENTRAL'NOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY I MOSKOVSKAYA GLAZNAYA KLINICHESKAYA BOL'NITSA.

UNCLASSIFIED

USSR

UDC: 576.851.553+576.851.553].098.31

BLAGOVESHCHENSKIY, V. A., TIKHAZE, A. K., and BORISHPOLETS, Z. I., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences, USSR, Moscow

"Lipase and Tweenase Activity of Cl. Perfringens and Cl. Botulinum"

Moscow, Byulleten' eksperimental'noy biologii i meditsiny, No 8, 1972, pp 74-77

Abstract: Enzymes of lipid metabolism in Cl. perfringens and Cl. botulinum were studied in connection with toxin formation in the bacterial cell. The experiments were performed with toxigenic BP6K No 28 and SR-12, weakly toxigenic 2836, 2910, and No 1, and practically nontoxigenic strain A-27 Cl. perfringens type A. Cl. botulinum, types A, B, and F were also used. It was found that the lipase activity is more strongly expressed in the toxin than in the cells, and exceeds the activity of the lipase in weakly toxic strains. Tweenases were divided into tweens 40 and 65. It was found also that the lipase activity appears in the first 24-hour period of culture growth in cells as well as in the toxins, and reaches a maximum during the second 24-hour period of growth.

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Microbiology

USSR

UDC 576.851.555.097.29.098.31

ISPOLATOVSKAYA, M. V., TOKINOVA, T. N., CHERIKOVSKAYA, YE. N., and BORISHPOLETS, Z. I., Laboratory of the Biochemistry of the Metabolism of Pathogenic Microbes, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"Neuramidase in the Cells and Toxins of Cl. Perfringens"

Moscow, Voprosy Meditsinskoy Khimii, Vol 19, No 1, Jan/Feb 73, pp 49-54

Abstract: Neuramidase is present in the cells and toxins of synchronous cultures of Cl. perfringens. Low toxicity strains have a more active cellular neuraminidase, while high toxicity strains have a more active extracellular neuraminidase. The peak activity of cellular neuraminidase occurs with 3-5 hrs of cell growth, while the activity of extracellular neuraminidase reaches its maximum after 9-12 hrs of cell growth and remains at this level for at least 24 hrs. The latter has an optimum pH of 4-5 and a high immunogenic activity, and it is 50% inactivated by heating at 60°C for 1 hr. The cellular neuraminidase has an optimum pH of 5-9, cannot be neutralized with antitoxin serum, and is thermostable. Both neuraminidases are equally resistant to EDTA and cysteine and sensitive to salts of heavy metals, urea, ethylenechlorhydrin, sodium dodecylsulphate, and polyanions. Both pass through Sephadex filters at the same rate.

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USSR

UDC 576.851.555.098.31:577.156

TEL'BUKH, V. P., BLAGOVESHCHENSKIY, V. A., ISPOLATOVSKAYA, M.V., and BORISHPOLETS, Z. I., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"Some Characteristics of Proteolytic Systems of Cl. perfringens Type A"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971, pp 93-97

Abstract: The relationship between the proteolytic and lecithinase activities of C. perfringens type A cells was studied during the first hours of growth on a casein-mushroom medium containing B complex vitamins. The level of proteolytic and lecithinase activities was high in the initial growth stages (2-hour culture), but after 6 hours no lecithinase activity could be detected. In another series of experiments, lecithinase was destroyed by the proteolytic enzymes present in resting cells of a 2-hour culture at both acid and weakly alkaline pH values. Lecithinase activity decreased even when incubated in an acid medium with endoproteinase isolated from cells of 2- and 6-hour cultures. The high proteolytic activity at both acid and alkaline pH suggests the existence of two endoproteinases or one proteinase with a wide spectrum of action. Proteinase was resistant to trypsin as an inhibitor. Proteinase treated with urea did not lose its activity when heated (to 80°C for 15 min), whereas untreated proteinase became half as active after heating. 1/1

1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PREPARATION OF A SINTER CAKE METALLIZED DURING SINTERING -U-

AUTHOR-(02)-BORISKIN, I.K., BYKOV, M.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(4), 51-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--IRON ORE, ORE BENEFICATION, SINTERING FURNACE, COKE, GRAIN STRUCTURE, THERMAL STRESS, METAL REDUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0813 STEP NO--UR/0148/70/013/004/0051/0054

CIRC ACCESSION NO--AT0132906

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002200420017-3"

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132906

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENT WORK IS DEVOTED TO THE POORLY STUDIED PROCESS OF PREPN. OF A SINTER METALLIZED DURING SINTERING. THE KORSHUNOVSK MAGNETITE CONC. WAS SINTERED ON A LAB. APP. THE FINES OF KUZNETSK COKE SERVED AS THE FUEL. THE COKE FINES WERE IGNITED BY CHARCOAL, AS WELL AS BY CHIPS SOAKED IN KEROSINE. THE SINTERING WAS STOPPED AT THE 1ST READING OF THE TEMP. OF THE DEPARTING GASES AFTER ITS MAS. VALUE. THE EFFECT OF THE COKE FINES CONTENT IN THE SINTER BATCH ON THE FORMATION OF THE METALLIC FE IN THE SINTER WAS STUDIED. IT WAS DETD. THEREBY THAT WITH A CHANGE OF THIS PARAMETER FROM 10 TO 35PERCENT THE CONTENT OF THE METALLIC FE INCREASES ON THE AV. FROM 1 TO 13PERCENT. THE MAX. CONTENT OF METALLIC FE (21PERCENT) IS OBTAINED IN THE CENTRAL PART OF THE CAKE WITH CONSUMPTION OF COKE FINES OF 35PERCENT. THE CHANGE CONTENT OF RESIDUAL C IN THE SINTER AND IN THE RETURN IS SHOWN. THE MICROSTRUCTURE OF THE SINTER OBTAINED ALSO SUPPORTS THE ABOVE FINDINGS. AT A CONTENT IN THE BATCH OF GREATER THAN 25PERCETN COKE FINES, THE VERTICAL SINTERING RATE AND THE YIELD OF SUITABLE SINTER DECREASE. THIS CAN PROBABLY BE EXPLAINED BY THE FORMATION OF A LARGE AMT. OF LIQ. PHASE IN THE LOWER PORTION OF THE CAKE AND BY THE LOOSE STRUCTURE IN ITS UPPER PART. THE OPTIMUM CHARACTERISTICS ARE OBTAINED FROM A BATCH CONTG. 25PERCENT COKE FINES. THE EFFECT OF O ADDN. INTRODUCED INTO THE BATCH ON THE COMBUSTION OF C WAS ALSO STUDIED, THE SINTERING CONDITIONS BEING THE SAME AS ABOVE. IN ADDN., THE EFFECT OF THERMAL STRESSES ON SINTER STRENGTH WAS DETD.

FACILITY: SIB. MET. INST., NOVOKUZNETSK, USSR.

UNCLASSIFIED

USSR

UDC 621.382.002

BORISHINA, L.V., ZVORYKIN, D.S., KABANOV, A.N., YUDAYEV, V.N.

"Electron Lithography"

Tr. Mosk. in-ta elektron.mashinostr. (Works Of The Moscow Institute Of Electrical Machine Building), 1970, No 9, pp 5-31 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 23341)

Translation: The possibility and methods are discussed of using an electron beam in the production of semiconductor devices. Results are compared which are obtained with the aid of positive and negative, native and foreign photoresists based on oxide protective films, and also without use of photoresists (in this case organosilicon compounds are used as protective films). Two methods are compared of obtaining an electron image -- the scanning beam and the microshadow method. Use of electron diffraction examination makes it possible to obtain on SiO_2 a line with a width down to 0.6 micrometer. 7 ill. 1 tab. 39 ref. M.K.

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USSR

UDC: 669.29.295:669.094.3:620.17

KORNILOV, I. I., BORISKINA, N. G., ZABRODSKAYA, M. N., BRYNZA, A. P., Institute of Metallurgy imeni A. A. Baykov

"Influence of Long-term Oxidation on the Mechanical Properties of Titanium"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1973, pp 5-6.

Abstract: This work presents a study of the dependence of the mechanical properties of VT1-0 titanium on temperature of oxidation in air (from 600 to 800° C) and holding time (from 25 to 750 hours). Strength, ductility and impact toughness were studied using two to three parallel specimens at room temperature. It is established that long-term oxidation at 600° C, forming a shining oxide film of dark-grey color, causes no significant increase in strength or yield point, while relative elongation at rupture does not change at all.

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USSR

UDC 620.193.5:669.295

KORNILOV, I. I., BRYNZA, A. P., BORISKINA, N. G., and ZABRODSKAYA, M. N., Academy of Sciences USSR, Institute of Metallurgy imeni A. A. Baykov

"Investigation of the Kinetics of Prolonged Atmospheric Oxidation of Titanium"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 77-79

Abstract: A study was made of the kinetics of prolonged (25-1000 hrs) atmospheric oxidation of technically pure titanium (VT1-0 brand) at 700 and 800°. The parabolic mass increase with time in atmospheric oxidation at 700-800°, maintained during the full investigation time, is satisfactorily described by the exponential equations $\Delta q^{1.7} = 7.3 \cdot 10^{-7} \tau$ and $\Delta q^{1.4} = 7.2 \cdot 10^{-5} \tau$, for 700 and 800°, respectively. The oxide film developing on titanium at 700° becomes brittle after 500-1000 hrs of oxidation and it crumbles with cooling. At 800° and over 250 hrs of oxidation, the scale is firmly bound to the base and, in all probability, sufficiently dense diffusion layers between the titanium and its scale are formed. The character of the microhardness dependence on the depth of the oxidized layer is discussed by reference to diagrams of gas-saturated layers of titanium at 700 and 800°. Two figures, one table, fourteen bibliographic references.

1/1

USSR

UDC 620.193.41

KORNILOV, I. P., BRYNZA, A. P., BORISKINA, N. G., and ZABRODSKAYA, M. N., Dnepropetrovsk State University and Institute of Metallurgy, Academy of Sciences USSR

"Effect of Long-Time Oxidation at 600°C on the Corrosion and Mechanical Properties of Titanium"

Moscow, Zashchita Metallov, Vol 9, No 6, 1973, pp 705-707

Abstract: VT1-0 titanium samples were heated at 600°C for periods of 25 to 1000 hours, cooled and weighed. Depth of oxidation penetration was measured by microhardness. Corrosion behavior was determined by placing samples in boiling solutions of 10% H_2SO_4, 1% oxalic acid, and 20% HCl for six hours and in 40% H_2SO_4 at 20°C for 2,250 hours. Up to 1000 hours the oxidation process was found to follow the parabolic law and the oxide film grew to 20 microns in thickness. Samples oxidized for 500-1000 hours possessed good corrosion resistance where the rate of corrosion in 10% H_2SO_4 was almost 300 times less than the unoxidized samples. Samples oxidized at 600°C for 25-1000 hours were thoroughly stable at 20°C in 40% H_2SO_4 for the test time of 2,550 hours. 2 figures, 1 table, 6 bibliographic references.
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USSR

KORNILOV, I. I., and BORISKINA, N. G., Editors

Novyy Konstruktsionnyy Material Titan (Titanium -- The New Structural Material), Izdatel'stvo Nauka, Moscow, 1972, 220 pp

Translation of Annotation: Titanium is becoming one of the most important structural materials for industry and its use grows with the increasing production of this metal and decreasing cost. This is evident from the expanded application of titanium in various branches of the national economy during the last decade. Titanium and its alloys are especially promising for chemical and other types of equipment. Titanium alloys have several advantages over pure titanium. They possess much higher specific strength and high corrosion stability.

Presently, the list of titanium alloys has increased greatly through the efforts of scientists and industrial workers. It includes not only titanium alloys with easily accessible and economic elements but also complex alloys possessing high heat-resistant properties and high corrosion stability.

The Section of Physico-Chemistry and Technology of Inorganic Materials of the Academy of Sciences USSR and Ministry of the Aviation Industry USSR organized in 1970 the 8th All-Union Scientific Research Conference on Titanium.

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KORNILOV, I. I., and BORISKINA, N. G., Novyy Konstruktsionnyy Material Titan, Izdatel'stvo Nauka, 1972, 220 pp

More than 200 papers were presented by different organizations and this showed the extent of interest toward titanium among scientists working on metallurgy and metallochemistry of titanium, as well as among industrial workers dealing with the production technology of equipment and semi-finished products made of titanium and titanium alloys. Much attention was paid to the introduction of titanium and its alloys in various branches of the national economy.

This conference indicated that a close relation exists between the scientific research on titanium and industry, which needs new and better structural materials.

Resolutions passed at the conference are directed toward a successful fulfilling of problems dealing with industrial production, faster building of equipment and their higher rational use, and designing of equipment with lesser amount of metals.

Introduction of titanium and its alloys which are light, strong, and corrosion-resistant is one of the most important links of the technological progress in chemical and other industries.

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USSR

KORNILOV, I. I., and BORISKINA, N. G., Novyy Konstruktsionnyy Material Titan, Izdatel'stvo Nauka, 1972, 220 pp

Part of the papers presented at the conference are included in this collection of works. Editors and contributors to this book are confident that research results and practical suggestions presented in this book will strengthen further the relation between science and industry and will promote a broader use of titanium alloys in industry.

Table of Contents

USSR

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Acc. Nr: AP0040321 Ref. Code: UR 0481

PRIMARY SOURCE: Eksperimental'naya Khirurgiya i Anesteziologiya, 1970, Nr 1, pp 81-83

ACTIVITY OF BLOOD CHOLINESTERASES IN TRICHLORETHYLENE ANAESTHESIA

A. S. Borisko

The results show that true cholinesterase during operation and anaesthesia does not vary to any great extent. The activity of pseudocholinesterase during operations and endoscopies decreased in most cases and under deep anaesthesia and pure trichloethylene this was most marked than with light anaesthesia and mixtures of anaesthetics. With different operations, manipulations, endoscopies with trichlorethylene anaesthesia the activity of true cholinesterase, and mainly of pseudocholinesterase decreases during the first days and reverts to normal on the 6th to 12th day.

USSR

UDC 517.946

BORISKO, N. A.

"Uniqueness of the Solution of the T Problem for an Equation"

V sb. Materialy Itog. nauchn. konferentsii. Kuybyshev. gos. ped. in-t, 1970, Vyssh. matematika (Papers. Summation of Scientific Conference. Kuybyshev State Pedagogical Institute, 1970. Higher Mathematics -- Collection of Works), Kuybyshev, 1970, pp 13-17 (from RZh-Matematika, No 4, Apr 71, Abstract No 4B408)

Translation: The problem of the uniqueness of the solution of one boundary value problem by a known method (Tricomi, Frankl) is studied for a linear equation of the type

$$u_{xx} + \operatorname{sgn} y\,|y|^m u_{yy} + a u_x + b u_y + c u = 0, \quad 0 < m < 1,$$

with coefficients satisfying certain conditions of an inequality type. The problem is distinguished from the Tricomi problem only in that the condition $\lim_{y \to +0} u_y(x, y) = \lim_{y \to -0} u_y(x, y)$ on the segment $0 < x < 1$ of the line of change of

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BORISKO, N. A., Materialy Itog. nauchn. konferentsii. Kuybyshev. gos. ped. in-t, 1970, Vyssh. matematika, Kuybyshev, 1970, pp 13-17

the type is replaced by the condition $\lim_{y \to +0} u_y(x, y) = -\lim_{y \to -0} u_y(x, y)$. For $a = b = c \equiv 0$, the uniqueness of the solution of this problem was proved by F. I. Frankl (RZhMat., 1962, 3B303). A. Nakhushev.

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USSR

BORISOGLEBSKIY, L., Central Scientific Research Institute of Sanitary Education

"A Profitable Business"

Dushanbe, Kommunist Tadzhikistana, 14 Feb 70, p 3

Translation: Every year over 100,000 Americans die in hospital beds as the result of medical errors or gross incompetence. This is the conclusion of Martin Gross, the author of a book entitled "The Doctors," published in the USA. Written on the basis of data from hospitals, reports from medical journals and many talks with doctors, this book has thrown a spot light on some little-known corners of American life. It exposed the myth of "complete and universal well-being" in the hospitals of this nation. "A shattering case," "medical incompetence," "complete lack of justification for surgical intervention, " "negligence in diagnosis," are definitions that run through the book. According to the author, many American doctors have actually lost a sense of responsibility for the health and life of their patients, while the notorious AMA (American Medical Association) "shows more concern about the income of its members than about 1/4

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BORISOGLEBSKIY, L., et al., Dushanbe, Kommunist Tadzhikistana, 14 Feb 70, p 3

the results of treatment."

Tragic errors are committed, in particular by doctors when administering anesthetics. According to estimated data, as a result of their incompetent or careless acts up to 33,000 patients die every year. In these sad statistics imperfection of anesthetic technique and inexperience of anesthesiologists play a significant role. Incidentally, in 57% of the cases anesthesia for surgery is administered by nurses or mere technicians and not by doctors.

An extensive article on pernicious medical incompetence was recently published in one of the most respectable American magazines, Look. "Every patient who goes into a hospital today," states the journal, "has a 15% chance (this is the mean figure!) of becoming a victim of a medical error.

... A few years ago, a boy by the name of Danny, was admitted to a Texas Hospital. He had swallowed some sort of pills. In the

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BORISOGLEBSKIY, L., Central Scientific Research Institute of Sanitary Education, Dushanbe, Kommunist Tadzhikistana, 14 Feb 70, p 3

emergency ward, the doctor prescribed an emetic, ipecac. Instead of the syrup, the nurse gave the child a liquid extract of this root and the boy soon died. That same week another patient was poisoned with the same emetic. At the trial, the nurse confessed that she did not know the difference between syrup and strong-acting extract, since she did not have enough training, even though she had worked at the hospital for many years.

Here is another equally tragic mistake: Digitals to be taken by mouth had been prescribed for a three-year-old boy in a hospital in Baton Rouge (Louisiana). The child was discharged soon after, but then was readmitted for surgery. Again digitalis was prescribed. Not knowing that this drug could be ingested, the nurse gave an injection which turned out to be fatal.

We are struck by the profusion of errors made in the course of blood transfusions. In some cases the labels on the bottles of blood are wrong, in others the donor blood group is confused, which

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BORISOGLEBSKIY, L., et al., Dushanbe, Kommunist Tadzhikistana, 14 Feb 70, p 3

renders the transfusion unsuitable for the patient. The bottles of blood often crack or are contaminated. Furthermore, in many therapeutic institutions of the USA transfusions are given when there is no need for them.

How can all this be explained? First of all, by the fact that in this rich capitalist nation, medicine has become a subject of shameless huckstering, a profitable business. The affluent powers are not too disturbed by the enormous rift between the advances of medical science, its objective capabilities, and what the ordinary American receives when he gets into a "general" hospital rather than a clinic forthe privileged rich.

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USSR UDC: 550.388.2

BORISOGLEBSKIY, V. S., VASIL'YEV, G. V., KOZLOV, B. F., PROKHORENKO, E. A., PROKHORENKO, V. P., Special Design Office of Physical Instrument Making of the Institute of Terrestrial Magnetism of the Ionosphere and Propagation of Radio Waves of the Academy of Sciences of the USSR

"An Ionospheric Probe"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331354, Division G, filed 25 Nov 70, published 7 Mar 72, p 143

Translation: This Author's Certificate introduces an ionospheric probe which contains an antenna with switch, a transmitter, a superhet receiver, a frequency synthesizer, a quartz-crystal oscillator module, a high--frequency amplifier module with electronic commutator, and a registration unit. As a distinguishing feature of the patent, the probe is designed for improved accuracy of measurements, acceleration of the process of recording a nomogram, and simultaneous printing of auxiliary symbols for operational analysis of the nomograms. A multiple-electrode registration unit is used with a paper-chart recording and with recording shapers on each electrode.
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BORISOGLEBSKIY, V. S. et al., USSR Author's Certificate No 331354

The registration unit is connected to the superhet receiver through a coding module. Connected to one input of the coding module is a matching unit which is connected to the quartz-crystal oscillator module through an electronic commutator. Connected to the other input of the coding module are the outputs of mosaic storage and electronic calendar modules which are connected directly to some of the recording shapers.

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USSR

UDC 539.1.074.3

BORISOV, A. A., BUGORSKIY, A. P., BUSHNIN, Yu. A., DEREVSHCHIKOV, A. A., DUNAYTSEV, A. F., ZHIL'CHENKOV, V. D., MATULENKO, Yu. A., MESHCHANIN, A. P., MIKHAYLOV, Yu. V., NURUSHEV, S. B., SEN'KO, V. A., SMIRNOV, V. V., SMIRNOV, Ye. V., SISKIN, V. V., SOLOV'YEV, L. F., and SOLOV'YANOV, V. L., Institute of High-Energy Physics, Serpukhov

"A Hodoscopic Installation for Investigation of the Elastic Scattering of High-Energy Particles"

Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/Jun 73, pp 49-53

Abstract: A description is given of a hodoscopic installation, developed at the Institute of High-Energy Physics, for investigation of the elastic scattering of high-energy particles within the pulse range of 30-60 gigaelectron volts/sec. The range of dispersion angles covered by the installation is 0-29 millirads with an angular resolution of $\pm$ 0.17 millirad. The total solid angle is 39 microsteres. The pulse is determined to within $\pm$ 0.22%. The resolving time is 35 nanosec. The dead time is 50 microsec. The pulse pass band of the spectrometer is 8%. The statistics-setup is up to 10^6 per hour. The installation is electrically coupled to a "Minsk-22" computer, which stores and processes the information during the experiment. The

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002200420017-3"

USSR

BORISOV, A. A., et al., Pribory i Tekhnika Eksperimenta, No 3, May/Jun 73, pp 49-53

obtained results are immediately printed out in the form of tables and graphs, and also appear on the oscillograph screen. Monitoring equipment has been developed, which keeps track of proper operation of the hodoscopes. The first results have been obtained on the scattering of π^--mesons on nuclei at a pulse of 50 gigaelectron volts/sec and of protons within the initial-pulse range of 30-60 gigaelectron volts/sec. 3 figures. 2 tables. 3 references.

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Explosives and Explosions

USSR

BORISOV, A. A., SKACHKOV, G. I., and OGURYAYEV, A. A., Institute of Chemical Physics, Acad. Sc. USSR, Moscow

"Ignition of N_2O + NO Mixtures at High Temperature"

Moscow, Kinetika i Kataliz, Vol 14, No 2, Mar-Apr 73, pp 294-300

Abstract: Ignition delays $t_{i...}$ were determined for N_2O + NO mixtures in temperature range 1050-2500°K from the reflected shock waves, in a static by-pass system. It has been shown that addition of NO lowers $t_{i...}$. Analytical expressions for the determination of $t_{i...}$ as a function of the constants of elementary stages and of the thermophysical parameters of the reaction were developed by solving a system of kinetic equations together with the equation of heat balance under adiabatic conditions and within the constrains of the theory of thermal explosion. From the comparison of t_i determined in N_2O with and without added NO, the reaction rate constant for the reaction $N_2O + NO = NO_2 + N_2$ was found to be $k_3 = 10^{14.4 \pm 0.2} \exp [-(50 \pm 3)/RT]$ $cm^3/mole \cdot sec$.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--RADIATION CONDITIONS OF USSR AREA DURING DIFFERENT GEOLOGICAL PERIODS -U-
AUTHOR--BORISOV, A.A.

B

COUNTRY OF INFO--USSR

SOURCE--VESTNIK LENINGRADSKOGO UNIVERSITETA, NO 6, GEOLOGIYA, GEOGRAFIYA, 1970, NR 1, PP 140-146
DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, ATMOSPHERIC SCIENCES, EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--CLIMATE, GEOLOGIC TIME, RADIATION MEASUREMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0866 STEP NO--UR/0307/70/000/001/0140/0146

CIRC ACCESSION NO--AP0110587
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0110587

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE GIVES THE RADIATION DATA RECEIVED BY THE AUTHOR BY CALCULATING FOR ALL GEOLOGICAL PERIODS. THESE DATA DEFINE SOME PECULIARITIES OF THE USSR AREA ANCIENT CLIMATES.

UNCLASSIFIED

Heat, Combustion, Detonation

USSR UDC:534.222.2

BORISOV, A. A., GEL'FAND, B. Ye., GUBIN, S. A., KLOGARKO, S. M., PODGREBENKOV, A. L., Moscow

"Reaction Zone Upon Detonation of Two-Phase Mixtures"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 374-385

Abstract: This work presents a study of the nature of the change in thermodynamic and gas-dynamic parameters of a gas-liquid combustion mixture in the reaction zone of the detonation wave. The purpose of the investigation was estimation of the size of the zone of heat liberation beyond the wave, the criterion which determined the possibility of stable propagation of detonation. Calculation of the changes of parameters of a two-phase mixture upon heterogeneous detonation performed using two different mechanisms of transition of the liquid phase to the gas phase showed the following: 1) breakup of droplets significantly intensifies the combustion of the liquid in comparison with the evaporation process;

USSR UDC:534.222.2

BORISOV, A. A., GEL'FAND, B. Ye., GUBIN, S. A., KLOGARKO, S. M., PODGREBENKOV, A. L., Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 374-385

2) a detonation model constructed on the assumption that the rate of combustion of the two-phase mixture is determined by the rate of drop breakup apparently gives the correct value of reaction zone length; 3) the length of the reaction zone during heterogeneous detonation is decreased sharply with decreasing average liquid drop size; 4) the energy loss to drop acceleration in the reaction zone is slight; and 5) full calculation of the reaction zone with heterogeneous detonation of droplets of at least 100 μ diameter must be performed considering deformation and breakup of the droplets.

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1/2 021 -- UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--THERMAL DECOMPOSITION OF METHYL NITRITE IN SHOCK WAVES. I. INITIAL STAGE OF THE DECOMPOSITION AND MECHANISM OF H SUB 2 CO* CHEMILUMINESCENCE.

AUTHOR--ZASLONKO, I. S., KOGARKO, S. M., MOZZHUKHIN, E. V., PETROV, YU. P., BORISOV, A. A

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, VOL 11, NR 2, PP 296-304

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--THERMAL DECOMPOSITION, NITRITE, CHEMILUMINESCENCE, ORGANIC NITROGEN COMPOUND, SPECTROPHOTOMETRIC ANALYSIS, FORMALDEHYDE, METHANOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0096 STEP NO--UR/0195/70/011/002/0296/0304

CIRC ACCESSION NO--AP0132389

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

IRC ACCESSION NO--AP0132389

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DECOMPN. OF MEONO IN SHOCK WAVES (780-10000DEGRESSK AND 35-1.6 ATM) WAS STUDIED SPECTROPHOTOMETRICALLY ALONG WITH DETN. OF ABS. INTENSITY OF EMISSION BY EXCITED H SUB2 CO SEXTILE AND HNO SEXTILE BCLS. THE EXPT. REVEALS THAT ENERGYWISE, MEONO DECOMPN. PROCEEDS IN 2 STAGES: 1) THERMALLY NEUTRAL STAGE WHEN H SUB2 CO, NO, AND MEOH ARE FORMED; AND 2) THE BASIC STAGE OF ENERGY EMISSION TAKING PLACE DURING OXIDN. OF H SUB2 CO AND MEOH. RATE CONST. OF THE PRIMARY CLEAVAGE OF N-O BOND IS K SUB1 EQUALS 10PRIME12.9 EXP (MINUS 34,000-RT) SEC PRIME NEGATIVE1. THE EXCITED'H SUB2 CO SEXTILE FORMS BY DISPROPORTIONATION OF 2 MEO RADICALS. H SUB2 CO SEXTILE FORMS IMMEDIATELY AFTER INITIATION OF MEONO DECOMPN., ITS CONCN. REACHES A MAX. AND THEN DECREASES PRACTICALLY TO ZERO. THE EMISSION BY H SUB2 CO SEXTILE HAS CHEMILUMINESCENT AND NOT A THERMAL NATURE. CONCN. OF HNO SEXTILE INCREASED UNTIL THE END OF OBSERVATIONS. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

B

UDC: 541.124.13

USSR

ZASLONKO, I.S., KOGARKO, S.M., MOZZHUKHIN, YE.V., PETROV, YU.P., and BORISOV, A.A.; Institute of Chemical Physics, Moscow, Academy of Sciences USSR

"Thermal DEcomposition of Methyl Nitrite in Shock Waves. I. The Initial Stage of Decomposition and the Mechanism of Chemiluminescence of H_2CO and HNO "

Moscow, Kinetika i Kataliz, Vol 11, No 2, Mar-Apr 70, pp 296-304

Abstract: The decomposition of MeONO in shock waves at temperatures of 780-1000°K and pressures of 0.35-1.6 atm was studied on mixtures of MeONO (0.7-1.5%) with Ar by carrying out spectoscopic measurements. The velocities of decomposition of MeONO and the intensities of emission by the electronically excited molecules H_2CO and HNO that formed in its decomposition were determined. The velocity constant of the primary process of cleavage of the O-N bond was $k_1 = 10^{12,9} \exp(-3400/RT)$ sec-1. It was established that the excitation of H_2CO took place as a result of its formation by the reaction 2 MeO→ H_2CO + MeOH. The probability of excitation was very low and corresponded to a ratio of ~10-10. The excitation of HNO in the early stage of decomposition was most likely due to the reaction H + NO + Me→ HNO + Me. Addition of NO to the mixture initially increased the rate of decomposition of MeONO to some extent because of the reaction MeONO + NO→ (MeO, H_2CO, MeOH) and then reduced it because of the reaction MeO + NO→MeONO. From the energy

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1/2 058 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--AMPLIFICATION OF WEAK SHOCK WAVES IN A BURNING TWO PHASE LIQUID GAS SYSTEM -U-
AUTHOR-(05)-BORISOV, A.A., GELFAND, B.YE., GUBIN, S.A., KOGARKO, S.M., PODGREBENKOV, A.L.
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SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--SHOCK WAVE, COMBUSTION R AND D, KEROSINE, OXYGEN, COMBUSTION RATE, MACH NUMBER

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF THE SPECIAL FEATURES OF THE INTERACTION BETWEEN WEAK SHOCK WAVES AND BURNING DROPLETS OF LIQUID FUEL (KEROSENE) IN AN ATMOSPHERE OF GASEOUS OXYGEN. IT IS FOUND THAT THE AMPLIFICATION OF WEAK SHOCK WAVES IN THE MACH NUMBER RANGE FROM 1.1 TO 1.3 IN A REACTING TWO PHASE LIQUID DROPLET GAS MIXTURE OCCURS AS A RESULT OF A SHARP INCREASE IN THE MASS COMBUSTION RATE OF THE FUEL OWING TO ATOMIZATION OF THE DROPLETS. THE INCREASE IN THE MASS COMBUSTION RATE BEHIND THE SHOCK FRONT LEADS TO AN INCREASE IN HEAT GENERATION AND TO THE FORMATION OF A COMPRESSION WAVE WHICH OVERTAKES THE LEADING EDGE OF THE SHOCK WAVE.

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113448g **Mechanism of the formation of a compression wave behind a weak shock wave front propagating in a combustible two-phase mixture.** Borisov, A. A.; Gel'fand, B. E.; Gubin, S. A.; Kogarko, S. M.; Podgrebenkov, A. L. (Inst. Khim. Fiz., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(3), 621–4 [Phys Chem] (Russ). The formation of a compression wave behind a weak shock front (Mach no. = 1.05–1.3) was studied in a shock tube contg. kerosine droplets in a N-O atm. Drop sizes of 0.5 and 2 mm were used. The gas phase varied (30–70% N) and initially was at 1 atm and 25° before introduction of the shock wave. The formation of the compression wave and its redistribution in the shock wave were followed by pressure recordings. The principal reason for the formation of a compression wave is the breaking down of the fuel droplets. This occurs in 2 stages. Initially, ~10% of the drops break into 100 μ droplets because of a collapse of the surface of the coarse drops. These fine drops quickly vaporize. The final stage is a flattening of the drops by the pressure of the gas stream, followed by a complete breakup into fine droplets. The formation of the compression wave depends primarily on the mixt. compn., the drop size of the fuel, and the intensity of the initial pressure of the shock wave.

E. E. Toops, Jr.

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1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--INTERACTION OF DROSOPHILA FUNEBRIS CHROMOSOMES FROM URBAN AND RURAL RACES IN EXPERIMENTAL POPULATIONS -U-

AUTHOR--BORISOV, A.I.

B

COUNTRY OF INFO--USSR

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CIRC ACCESSION NO--AP0140430
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FREQUENCIES OF HOMO, AND HETEROZYGOTE DROSOPHILA FUNEBRIS, DIFFERING BY THE INVERSION II-1 IN EXPERIMENTAL POPULATIONS OF URBAN (THE 1ST VARIANT) AND MIXED URBAN AND RURAL (THE 2ND VARIANT) ORIGIN, WERE INVESTIGATED UNDER THE SAME CONDITIONS. IN THE 1ST VARIANT POPULATIONS, THE URBANIAL INVERSION INTERACTED WITH THE URBAN STANDARD ORDER AND THE FREQUENCY OF INVERTED CHROMOSOMES WAS SIGNIFICANTLY HIGHER (BY 10 - 18PERCENT) THAN THE INVERSION FREQUENCY IN THE POPULATIONS OF MIXED ORIGIN, WHERE THE URBAN INVERSION INTERACTED WITH THE STANDARD ORDER OF RURAL ORIGIN. DIFFERENCIES BETWEEN GENE CONTENTS OF STANDARD ORDER FROM URBANIAL AND RURAL POPULATIONS OF THIS SPECIES EXISTED. SUCH DIVERGENCE OF RURAL AND URBAN ECOLOGICAL RACES MAY BE REGARDED AS AN EXAMPLE OF ONE OF THE EARLY STEPS OF SPECIATION. FACILITY: INST. DEVELOP. BIOL., ACAD. SCI. USSR, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 661.143(088.8)

KRYKOV, YE. I., BORISOV, A. K., and SHUL'GIN, B. V.

"Luminescent Compound on the Basis of Elements of the III Group"

Ural'sk. politekhn. in-t (Ural Polytechnical Institute)

USSR Author's Certificate No 323429, Filed 19 May 70, Published 22 Feb 72 (from Referativnyy Zhurnal -- Khimiya Svodnyy Tom, No 23(II), 1972, Abstract No 23L137P by N. SH.)

Translation: A luminescence-producing compound which includes elements of the III group is patented. For example, the Y compound, with the activator Eu. In order to increase the luminescence brightness, oxides or chlorides of titanium and niobium are added to it. Oxides of Y and Eu, and oxides or chlorides of Ti and Nb are added in a stechiometric ratio which corresponds to the artificial euxenite $Y_{1-x}Eu_xTiNbO_6$ where x = 0.01-0.65. For example a mixture containing (in g) Nb_2O_5 3.5314, $2TiO_2$ 2.1228, Y_2O_3 1.616, and Eu_2O_3 1.384 are ground in alcohol for 40 min, dried, ignited at 1050°C for 2 hr, ground again in ethalon for 30 min and pressed into tablets. Tablets are roasted at 1200°C for 10 hr in air, cooled in the turned off oven, and subjected to the final roasting at 1250°C for 1 hr. The obtained product corresponds to $Y_{0.5}Eu_{0.5}TiNbO_6$ with its

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USSR UDC 661.143(088.8)

BORISOV, A. K., KRYLOV, YE. I., and SHUL'GIN, B. V., Ural Polytechnic Institute

"Luminescent Substance"

USSR Authors' Certificate No 321893, Cl. H 01 s 3/16, filed 19 May 70, published 31 Jan 72 (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14N132P by N. Sh.)

Translation: To increase the chemical and thermal stability of a luminescent material and improve its chromatic characteristics, niobium and titanium in the form of oxides or chlorides are taken and their mixture with europium is activated until stoichiometry of the compound $EuTiNbO_5$ is attained. The composition contains (in %): 44.8-45.2 Eu_2O_3, 34.2-35 Nb_2O_5 and 19.8-20.6 TiO_2. This substance is chemically stable, insoluble in alkalis and many acids, and also thermostable up to 1360°, which significantly widens the sphere of its possible employment.

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USSR

BORISOV, A. N., VUL'F, G. N., OSIS, Ya. Ya.

"Prediction of the State of Complex Systems Using the Theory of Eroded Sets"

Kibernetika i Diagnostika [Cybernetics and Diagnosis -- Collection of Works], No 5, Riga, Zinatne Press, 1972, pp 79-84 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V885 by the authors).

Translation: The possibility is studied of using the theory of eroded sets in problems of predictions of the states of complex systems. The vector function of state X(t) in this case is replaced by a function of membership in class $f_{\omega r}(X, t)$. As an example, prediction of the state of a cylinder-piston group in an internal combustion engine is studied.

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USSR UDC 51:155.001.57:681.3.06

BORISOV, A. N., KOKLE, E. A.

"Recognition of Eroded Patterns by Characteristics"

Kibernetika i Diagnostika [Cybernetics and Diagnosis -- Collection of Works], No 4, Riga, Zinatne Press, 1970, pp 135-147 (Translated from Referativnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V583 by the authors).

Translation: A method is suggested for recognition of eroded patterns. The method is based on construction of degenerate transforms of descriptions of classes and selection of useful class characteristics among them. Algorithms for construction of a decision rule with full sampling and limiting sampling (using a separable usefulness function) are studied. The general statements are illustrated with concrete examples.

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USSR

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BORISOV, A. N., OSIS, Ya. Ya.

[redacted]

"Method of Estimating Membership Functions of Elements of an Eroded Set"

Kibernetika i Diagnostika [Cybernetics and Diagnosis -- Collection of Works], No 4, Riga, Zinatne Press, 1970, pp 125-134 (Translated from Referativnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V582 by the authors).

Translation: In recognition of patterns represented by eroded sets, the necessity arises of estimating the membership functions of objects in the learning sequence. The conditions placed on systems of classes in fixing the membership functions are studied. A method is suggested for estimating the membership functions of elements of eroded sets. The methods used are illustrated by example.

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